

REMARKS

The following remarks are submitted as fully responsive to the Final Office Action.

Claims 1, 21, 22, and 25 are the independent claims. Favorable reconsideration is requested.

I. Summary of Interview With Examiner Le and Subsequent Action

During the telephone interview conducted on October 18, 2007, Applicants' attorneys and Examiner Le first reviewed, in broad strokes, Applicants' invention as set forth in detail in the present application. The focus of the interview then turned to the final rejection of independent claims 1, 16 and 17 under 35 U.S.C. §103(a) as allegedly obvious over U.S. Patent No. 4,959,027 ("Muzslay") in view of U.S. Patent No. 5,605,475 ("Ogawa").

During the interview, Applicants' attorneys presented cogent arguments (further to and along lines previously presented in responses to previous Office Actions) that none of the references cited by the Examiner disclose or yield Applicants' invention as claimed in independent claims 1, 16 and 17. The Examiner appeared to appreciate the functional and structural differences between Applicants' invention and the constructions described in the cited references. Indeed, as noted in the AAIR, the Examiner affirmatively confirmed as correct Applicants' interpretation of the Examiner's comments in reply to the Response to the previous Office Action (set forth on page 5, ¶9, of the AAIR) as suggesting that amending independent claims 1, 16 and 17 to recite that the connector shell is "removably" affixed to the insulator or the housing (*i.e.*, to clarify that the connector shell can be readily exchanged for others of a set of interchangeable connector shells having different terminal socket configurations to accommodate engagement with a variety of mating connectors of different mating configurations) would distinguish over the cited references. The Examiner, however, would not

commit to entering such clarifying amendments without the submission of yet another RCE, and further suggested that such amendments might necessitate further searching and examination. Applicants' undersigned attorneys respectfully pointed out that, with such clarifying amendments (suggested by the Examiner herself in the present Final Office Action), and in view of the acknowledged functional and structural differences between Applicants' invention and the constructions described in the cited references, further searching/examination was neither necessary nor appropriate, and the application would be in condition for immediate allowance. The Examiner recommended either filing the RCE or appealing the case.

Nonetheless, the Examiner entered the suggested clarifying amendments contained in the AAFR. In the subsequent Advisory Action, the Examiner did not state why the amendments did not place the application in condition for allowance, only tersely noting that Applicants' arguments "are not persuasive."

II. Summary of Interview With Supervisory Examiner Patel and Subsequent Action

Promptly after concluding the telephone interview with Examiner Le, Applicants' attorneys placed a telephone call on October 18, 2007 to Supervisory Examiner Patel to seek his guidance on how to proceed in view of the telephone interview with Examiner Le. The Supervisory Examiner recognized that the searches and examination conducted by the Examiner, to date, were comprehensive and now complete, and that clarifying amendments to the independent application claims, including the amendment suggested by Examiner Le, should place the present application in condition for immediate allowance.

The focus of the call then turned to the "wherein" clause of independent claim 1 which the Supervisory Examiner suggested might benefit from further clarifying amendment. Finally, the Supervisory Examiner recommended that Applicants file an early response to the

Final Office Action to obtain entry of the discussed clarifying claim amendments. The AAFR was submitted as just such an early response.

As noted, Examiner Le entered the amendments made in the AAFR, but in the Advisory Action stated that the amendments and arguments did not place the application in condition for allowance. This was a surprise to Applicants, inasmuch as they amended the claims as per the discussions with Examiners Le and Patel in the telephone interviews.

III. Detailed Response

Claims 1 and 3-16 are pending in this application. Claims 1, 3 and 12-16 stand finally rejected, and claims 4-11 are allowed. Independent claims 1 and 16 have previously been amended (in the AAFR) as suggested by Examiner Le and at the further suggestion of Supervisory Patent Examiner Patel. No new matter was introduced.

On the basis of the telephone interviews with Examiner Le and, separately, Supervisory Examiner Patel, the claim amendments made in the AAFR as a result of these telephone interviews, and the following remarks, reconsideration and allowance of this application is earnestly solicited.

Independent claims 1 and 16 and dependent claims 3, 12-13 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Muzslay in view of Ogawa. Applicants respectfully traverse the foregoing claim rejections for the reasons set forth hereinafter.

As set forth in detail in the present application and as described in previous submissions and Examiner interviews, Applicants' invention is directed to a new pressure-tight contact device, especially of the type employed in connection with a pressure-tight encapsulated electric motor for driving a compressor used in a vehicle air suspension system, for example. The inventive contact device includes an insulator extending through and sealed relative to a

pressure-tight housing. One or more contact pins (electrically connected to the motor, for example) are retained in and extend through the insulator and are sealed relative to the insulator. A connector shell is positioned on the insulator, sealed relative to the insulator, and removably affixed to the insulator or the housing to form part of the contact device. The connector shell includes a terminal receptacle or socket for engaging a separate mating connector attached to an electric connecting cable (*i.e.*, a plug). One or more contact tabs are disposed in the connector shell in secure electrical contact with the contact pin(s) and extend into the terminal socket to engage the mating connector (plug). The connector shell is one of a set of interchangeable connector shells having different configurations for mating with different, corresponding plugs.

In essence, the connector shell provides a pressure-tight, readily interchangeable contact assembly interposed between a contact pin (*e.g.*, leading to the motor or other encapsulated device) and a plug (*e.g.*, leading to current supply lines or further signal lines). As explained below, such a novel construction and arrangement is not taught or suggested by any of the references cited by the Examiner, whether taken alone or in combination.

Muzslay, the principal reference cited by the Examiner, describes a fuel injector adaptor (14) for permanent mounting on a straight fuel injector (12) to accommodate a connector (16) designed for an inclined injector. The adapter includes a housing (40) with a lower housing part (42) that opens along a downward axis (44) and an upper housing part (46) that opens along an upwardly inclined axis (50) (preferably, 45° from vertical). A pair of bent, plate-like contacts (52, 54) are mounted in the housing (40), with each contact having an upper part laying within the upper housing part (46) and extending along the inclined axis (50), and a lower contact part lying in the lower housing part (42) and extending perpendicular to the downward axis (44). The lower housing part (42) is permanently mounted on an upper end (30) of the straight fuel injector

(12), with injector terminals (24, 26) projecting through holes in the contact lower parts to hold the contacts (52, 54) securely in position.

As previously submitted, Muzslay, taken alone or combined with any other reference cited by the Examiner, does not describe, yield or suggest the present invention as claimed in independent claims 1 and 16. Muzslay nowhere teaches or suggests a removable connector shell that is one of a set of interchangeable connector shells having different terminal socket configurations suitable for engaging various corresponding mating connectors having corresponding mating configurations. Rather, Muzslay describes only a single adapter configuration. Muzslay at Fig. 3. No set of adapters is taught or suggested. No interchangeability of a set of adapters, designed to mate with a corresponding set of different harness connectors, each having a different mating configuration, is taught or suggested. There is no contemplated set of adapters designed to mate with a corresponding set of harness connectors, each element of the set of adapters, for example, each having injector terminals extending at a different angle θ from the vertical, and each attachable to a different corresponding harness connector having the same angle θ from the vertical (the respective angles of the adapter and the harness connector from the vertical being congruent, as they are alternate interior angles on the interior of two parallel planes parallel to the plane of the vertical terminals (24,26) of the fuel injector).

As suggested by the Examiner, in the AAFR Applicants amended independent claims 1 and 16, to recite, *inter alia*, that the connector shell is “removably” affixed to the insulator or the housing, so as to clarify the claimed interchangeability of the connector shell and thus to clarify a patentable difference between the present claimed invention and Muzslay. That is, a patentable difference recognized by both the Examiner and the Supervisory Examiner.

Furthermore, it is noted that Muzslay teaches that the adapter is permanently held in place once it is installed on the injector. Muzslay at 1:37-40; 4:3-18. During the telephone interview with Supervisory Examiner Patel, the Supervisory Examiner seemed to suggest that the adapter disclosed in Muzslay need not necessarily be permanently held in place, citing Muzslay at 4:3-23. Applicants respectfully submit that this passage does not teach a removable connector shell by design so as to be easily interchangeable with other members of a set of connector shells. Rather, Muzslay clearly states the desirability that the adapter be permanently held in place on the fuel injector so as to prevent movement or bending of the contacts if the adapter + harness connector (still mated) is pulled off the fuel injector. This notwithstanding, in view of the foregoing clarifying claim amendments, Applicants respectfully submit that Muzslay does not teach or suggest Applicants' invention as presently claimed.

As previously explained, Ogawa, cited by the Examiner in combination with Muzslay for its disclosure of an O-ring, does not overcome the severe deficiencies of Muzslay as discussed above. Ogawa describes embodiments of an electrical connector in threaded combination with a tube member used for making an electrical connection through a wall. Ogawa nowhere describes, teaches or suggests the contact device according to the present invention as affirmatively claimed in independent claims 1 and 16 of the present application comprising an interchangeable connector shell that is one of a set of interchangeable connector shells having different terminal socket configurations suitable for engaging various corresponding mating connectors having corresponding mating configurations.

Accordingly, independent claims 1 and 16 of the present application recite features and structure nowhere found in either of the Muzslay and Ogawa references, and, thus, these references, taken alone or in combination, cannot yield the present claimed invention. In

particular, as Muzslay does not disclose, teach or suggest interchangeable connector shells, it is submitted that one of ordinary skill in the art at the time Applicants' invention was made would not have been be motivated, let alone equipped, to arrive at the present invention as claimed in independent claims 1 and 16. This is the case whether looking solely to Muzslay, or to Muzslay in combination with any other reference cited by the Examiner, including Ogawa.

For similar reasons dependent claims 3, 12-13 and 15 are also allowable. Notice to this effect is earnestly requested.

Dependent claim 14 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Muzslay in view of Ogawa, and further in view of U.S. Patent No. 6,558,178 ("Nakamura"). Applicants specifically traverse the foregoing claim rejection for the reasons set forth hereinafter.

Applicants respectfully submit that dependent claim 14 is not only allowable by reason of its dependency from independent claim 1, and for the additional features and structure recited therein, but also because it does not remedy the severe deficiencies of Muzslay and Ogawa as discussed above. As previously submitted, Nakamura, cited by the Examiner for its disclosure of a plurality of projections from at least one contact pin, describes embodiments of a waterproof connector having a small size due to the reduction of surplus space (see Fig. 9). Nakamura nowhere teaches or suggests the contact device according to the present invention comprising the interchangeable connector shell with its plug receiving terminal socket including one or more contact tabs in electrical contact with one or more contact pins extending through the insulator.

Accordingly, it is submitted that dependent claim 14 is in condition for immediate allowance. Notice to this effect is respectfully requested.

Applicants have made a diligent effort to discuss this case with the Examiner and Supervisory Examiner, and to accept their suggestions to claim patentable differences from the cited art – said differences noted by the Examiner and Supervisory Examiner themselves -- and to thus place this application in form for allowance. Notice to this effect is earnestly solicited.

The Examiner is invited to contact Applicants' undersigned attorneys at the telephone number set forth below if it will advance the prosecution of this case.

No additional fee is believed due with this Response. Please charge any fee deficiency, and credit any overpayment, to Deposit Account No. 50-0540.

Respectfully submitted,



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